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Swinomish Indian Tribal Community

A Federally Recognized Indian Tribe Organized Pursuant to 25 U.S.C. § 476
* 11404 Moorage Way * La Conner, Washington 98257 *

July 15, 2015

Senator Patty Murray
154 Russell Senate Office Building
Washington, D.C. 20510

Senator Maria Cantwell
511 Hart Senate Office Building
Washington, D.C. 20510

Congresswoman Suzan Delbene
318 Cannon House Office Building
Washington, D.C. 20515

Congressman Rick Larsen
2113 Rayburn House Office Building
Washington, D.C. 20515

Congresswoman Jaime Herrera Beutler
1130 Longworth House Office Building
Washington, D.C. 20515-4703

Congressman Dan Newhouse
1641 Longworth House Office Building
Washington, D.C. 20515-4704

Congresswoman Cathy McMorris Rodgers
203 Cannon House Office Building
Washington, D.C. 20515-4705

Congressman Derek Kilmer
1520 Longworth House Office Building
Washington, D.C. 20515-4706

Congressman Jim McDermott
1035 Longworth House Office Building
Washington, D.C. 20515-4707

Congressman Dave Reichert
1127 Longworth House Office Building
Washington, D.C. 20515-4708

Congressman Adam Smith
2264 Rayburn House Office Building
Washington, D.C. 20515-4709

RE: Eelgrass impacts associated with Corps of Engineer Nationwide Permit 48

Dear Senators Murray and Cantwell, Congresswomen Delbene, Beutler and Rodgers, and Congressmen Larsen, Newhouse, Kilmer, McDermott, Reichert and Smith:

I am writing today to bring your attention to another side of the issue over aquaculture and eelgrass in Puget Sound. In March of this year a letter signed by the Washington

Congressional delegation was sent to Jo-Ellen Darcy, Assistant Secretary of the Army for Civil Works, discussing a restriction on aquaculture operations when they expand or revert into native eelgrass beds. The letter asks for removal of limitations on expansion of aquaculture operations into "fallow" eelgrass beds. What you may not have realized when that letter was sent is the extent to which this interpretation of the term "fallow" could harm Puget Sound nearshore salmon habitat.

As part of the Army Corps of Engineers (ACOE) re-issuance of Nationwide Permit 48 (NWP 48), we see a potential expansion of shellfish aquaculture into hundreds, if not thousands, of native eelgrass beds in Samish Bay alone. This is because the ACOE has refused so far to define or put limits on what constitutes a "fallow" eelgrass bed. The growers insist that "fallow" lands include those aquatic acres deeded to shellfish operations as part of the Bush & Callow Acts of 1895. Thus, according to the growers and the ACOE, virtually all private shellfish ownership in the Samish Bay mudflats, which amounts to approximately 3700 acres, could be considered either active or "fallow", regardless of how long ago it was cultivated. Much of this acreage has not been actively cultivated for decades, if ever. As confirmation of this, the ACOE biological assessment for NWP 48, based on acreages provided by the growers, claims almost 1,300 acres of active cultivation and 2,300 acres of "fallow" acres in Samish Bay alone. Statewide the acreages are substantially more – as much as 11,000 acres. At this point, let me be perfectly clear that the Swinomish Tribe, like other tribes in our area, are not taking issue with *existing* aquaculture operations. Nor are we saying that aquaculture expansion into new or fallow eelgrass areas should be absolutely prohibited—only that such expansion is beyond the scope of a Nationwide 48 permit, and should be evaluated on an individual basis.

Last December, partly in response to a letter from our natural resources affiliate the Skagit River Systems Cooperative (SRSC), the ACOE and National Marine Fisheries Service added a requirement (Condition #7) to the Programmatic Biological Assessment that would have protected eelgrass in "fallow" areas much as it is protected in new aquaculture growing areas. Again, this was necessary because there is no clear definition or time limit on what is considered "fallow" aquaculture. In March a letter signed by the congressional delegation asked the ACOE to strike Condition #7 on the grounds that it would inhibit the growth of the shellfish industry. In response to the letter from the Congressional Delegation, Colonel Buck at the ACOE has decided

to rescind Condition #7, giving little if any permit protection to eelgrass in areas deemed as fallow.

Eliminating Condition #7 sets a paradoxical double standard for eelgrass protection. On the one hand, millions of dollars are spent in Puget Sound protecting and replacing native eelgrass beds. The Puget Sound Partnership has set a goal of *increasing* eelgrass acreage by 20 percent. Permits for docks and piers and other in-water construction must avoid eelgrass at all costs, and replace eelgrass if avoidance is not possible. New aquaculture, including many acres of aquaculture that tribes (including Swinomish) wish to establish, must avoid or mitigate for all eelgrass impacts. So why the free pass for "fallow" aquaculture that isn't really fallow? If eelgrass is truly important, then it should be protected everywhere. If it is not important then why protect it at all? The delegation letter did not identify a functional or biological distinction between fallow and non-fallow eelgrass beds, but encroachment has an impact either way.

Although the shellfish growers were successful in persuading the delegation to come to their aid in striking Condition #7, we have to assume that the delegation was not made aware of the reasons why Condition #7 was inserted in the first place. For that reason I am attaching a copy of the SRSC letter from last November, which lays out the biological and practical considerations for protecting eelgrass in "fallow" areas. I trust that after considering perspectives from both sides of the issue the delegation will conclude that Condition #7 is necessary after all, or perhaps that a clear definition of "fallow" aquaculture will allow the ACOE to protect native eelgrass and provide for reasonable crop rotations in the existing aquaculture operations.

We at the Swinomish Indian Tribal Community look forward to resolving this important issue for eelgrass protection in a timely manner, as a release of the biological opinion for NWP 48 is

imminent. I will instruct Larry Wasserman, the SITC Environmental Policy Director, to follow up on this issue as soon as your schedule permits.

Sincerely,

Brian Porter, Vice-Chair

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November 5th, 2014

Mr. Matt Longenbaugh
Habitat Conservation Program
National Marine Fisheries Service
510 Desmond Way SE
Lacey, Washington 98503

Reference: programmatic biological opinion on shellfish aquaculture

Dear Matt;

As we discussed at your office last week, the Skagit River System Cooperative (SRSC) has concerns with the biological opinion (BiOp) for shellfish aquaculture that your office is preparing, as well as concerns with the Army Corps of Engineers programmatic biological assessment (PBA) on which it is based. These documents will be the foundation for issuing ACOE Nationwide Permits (NWP 48) for aquaculture activities throughout western Washington, which has the potential for adverse impacts to critical habitat for Chinook salmon, steelhead trout, and other ESA listed species. The SRSC member tribes– the Swinomish Indian Tribal Community and the Sauk-Suiattle Indian tribe– have depended for generations on sustainable harvests of finfish and shellfish, and are keenly interested in protecting habitat for these aquatic species, which are the foundation of the northwest tribal economy and culture.

After careful examination of the PBA and the BiOp, SRSC and our member tribes believe these documents have significant flaws, in both the information used and the conclusions drawn, and we request that the ESA consultation between NMFS and the ACOE be put on hold until the data used in the PBA can be verified and the conclusions re-considered based on accurate (or verified) information. Our comments fall into two broad considerations: 1) that the acreages of existing aquaculture are both inaccurate and mis-interpreted, leading to an under-estimate of future impacts, and 2) that the review of the impacts of shellfish aquaculture discount certain conclusions in the scientific literature, which if applied to a correct accounting of aquaculture acreage would demonstrate significant habitat modification in some areas, particularly Samish Bay in North Puget Sound.

Nothing in our comments is meant to imply that we take issue with existing shellfish aquaculture activities in the North Sound. SRSC and our member tribes emphatically support a vigorous and successful shellfish industry, provided that protection for salmon, steelhead, crab, and the habitat on which those species depend is also assured. Indeed, the

Swinomish Tribe is exploring opportunities for tribal shellfish aquaculture on recently purchased aquatic parcels in Similk Bay. We support the growth of the industry, but we need to make sure that expansion does not come at the expense of eelgrass and other nearshore habitats that support a diverse and productive ecosystem. With that in mind, we offer the following comments.

The acres of existing aquaculture given in the biological assessment are inaccurate.

At the root of the acreage issue are several important distinctions the Corps PBA makes between continuing cultivated, continuing fallow, new, and abandoned aquaculture (PBA page 6).

> **Continuing cultivated shellfish activities** are those that have been granted a permit, license, or lease from a state or local shellfish agency specifically authorizing commercial shellfish aquaculture, and that were occurring within a defined footprint prior to 18 March 2007. The emphasis is on the specific footprint on which the activity was occurring. Based on permit applications previously submitted to the Corps, the continuing activities have been identified and recorded in a database that is maintained by the Corps.
>
> **Continuing fallow** areas are those that were not under cultivation in March 2007 and have not been cultivated since. Note there is no historical limit to continuing fallow, nor are the acreages verified. It is likely that some "fallow" areas have not been cultivated for many decades, if ever.
>
> **Abandoned activities** are those where shellfish activities have ceased due primarily to a change in lease or ownership.

The distinction between continuing cultivated and continuing fallow acreage is important, since the Corps will require a permit modification for any shellfish activity that is initiated or resumed on lands classified as fallow that contain eelgrass. As SRSC interprets the PBA, under a NWP 48 growers are allowed to freely cultivate shellfish in areas of their operation categorized as continuing or fallow, but to cultivate in fallow areas occupied by eelgrass will require a permit modification. As part of that permit modification the growers will need to demonstrate through the standard mitigation sequencing that impacts have been minimized, including compensatory mitigation.

To calculate acreages used in the PBA the Corps relied on growers to self-report their continuing and fallow acreages. Unfortunately much of this data was gleaned from NWP 48 applications, where the distinctions between continuing and fallow aquaculture may not have been perfectly clear. It is also likely that the precise distinction between current and fallow has changed in the years since some of the NWP 48 applications were filed. As a result of self-reporting the PBA has apparently mis-counted or mis-categorized the continuing and fallow acreages. SRSC is unaware of the reporting accuracies for areas other than the North Sound, but in Samish and Skagit bays there is evidence that the

continuing cultivated acreage has been exaggerated, which would lead to an underestimate of the impacts of future aquaculture expansion.

According to the PBA (Table 3-6, page 36), in North Puget Sound there are approximately 1,300 acres of continuing cultivated and 2,300 acres of continuing fallow shellfish aquaculture. The data used to compile Table 3-6 were provided by the Corps to SRSC. The self-reporting acreages indicates that a single grower in Samish Bay, Taylor Shellfish, has about 290 acres under cultivation and another 2,000 acres of fallow, including some lands Taylor leases from other landowners. In a 2013 email exchange between Taylor Shellfish, the Corps, and SRSC, where SRSC was seeking clarification on the fallow acres, Taylor reported that the 2000 acres had been fallow for at least 35 years. The Taylor Shellfish properties, indeed almost all of the aquaculture parcels in Samish Bay, overlap with mapped eelgrass beds.

The overlap of combined aquaculture parcels and eelgrass beds in Samish Bay amounts to approximately 2500 acres. Most of these acres would be considered continuing fallow aquaculture in the PBA. Conversion of these acres from "fallow" (native eelgrass beds) to cultivated would constitute a significant habitat modification and have a significant impact on aquatic habitat for ESA listed species in Samish Bay. NMFS appears to have interpreted these acres as existing aquaculture, and concluded that little impact will occur if aquaculture is continued. That interpretation ignores a potentially extensive encroachment into eelgrass on which ESA listed species currently depend.

Elsewhere in the North Sound, in Skagit Bay, the Corps data (used in PBA Table 3-6) indicates that Transocean Seafoods has a pending application for 508 cultivated acres of ongoing clam, mussel, and oyster operations. Swinomish tribal records indicate that growing operations on these parcels have had only limited success, and in any case have not been harvested, or only minimally so, since about 1997. Our information indicates that these 500 acres should be mapped as continuing fallow, or abandoned, whereas the PBA data includes these 500 acres as existing. Transocean maps submitted as part of the NWP 48 application show minor areas of clam planting and clam nets interspersed over approximately ten percent of the 500-acre ownership. Earlier Transocean maps submitted to the Swinomish Tribe under a Notice of Intent to create new or enhanced shellfish beds show "historical oyster longlines" spread throughout the ownership, but that these historical activities likely date back to the 1930s.

Again, if the NMFS is considering only new shellfish aquaculture as having an impact, and lumping fallow and active cultivation as existing operations, then the 500 acres of existing aquaculture claimed by Transocean would grossly overestimate the aquaculture activities on the site since 2007. This mis-interpretation likely occurs on many other parcels in western Washington that are covered by the PBA.

Because the Transocean operation is predominantly mudflat and will have only minor impacts to eelgrass beds, SRSC is not objecting to the Transocean permit. In fact there is some evidence (discussed later) that converting from mudflat to shellfish aquaculture introduces habitat "structure" that potentially benefits juvenile salmon, crab, and other

species. We mention the application here as evidence that the acreages used in the PBA and the BiOp are inaccurate, and grossly overestimate current activities, which in many instances (where eelgrass is affected) would underestimate the future impact of converting from fallow to cultivated aquaculture.

The self-reporting acreages in the North Sound appear to over-estimate existing aquaculture by approximately 500 acres, and that approximately 2000 acres of fallow aquaculture are currently serving as native eelgrass habitat. These are significant mis-interpretations of the acreage used in the NMFS BiOp. If the self-reporting acreages in North Puget Sound are repeated elsewhere in western Washington, then impacts to the aquatic environment examined in the BiOp could be drastically under estimated.

The biological opinion ignores research on how aquaculture impacts eelgrass.

The Skagit Chinook Recovery Plan (SRSC and WDFW 2005)[1] emphasizes the preservation of estuary and nearshore habitats as crucial for the recovery of local salmon populations. Among the recommendations in the Recovery Plan is one to limit the impact to eelgrass beds, and to assure that all impacts to eelgrass are fully mitigated.

Greene and Beechie (2004)[2] and Greene et al. (2005)[3] implemented sophisticated models of density dependent chinook salmon survival that compared habitats in the Skagit river, delta, and nearshore. They found that of the many habitat influences on the life cycles of salmon, chinook population size was most sensitive to changes in nearshore and ocean survival. They noted that the nearshore phase of the life cycle is associated with large increases in body size and a high risk of predation. The purpose of the model was not to link survival to microhabitats (such as eelgrass). Nevertheless, they (Greene and Beechie 2004) concluded that "[t]he fact that the largest increase in populations size resulted from a change in nearshore survival suggests that nearshore conditions may be an important limiting factor in the life cycle of ocean-type chinook salmon." They went on to point out that improvements to nearshore survival will offer disproportionate benefits to ocean-type chinook populations.

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[1] Skagit River System Cooperative and Washington Department of Fish and Wildlife. 2005. Skagit Chinook Recovery Plan. Skagit River System Cooperative, La Conner, WA. Available at www.skagitcoop.org/.

[2] Greene, C.M., and T.J. Beechie. 2004. Consequences of potential density-dependent mechanisms on recovery of ocean-type chinook salmon (Oncorhynchus tshawytscha). Can. J. Fish. Aquat. Sci. 61: 590-602.

[3] Greene, C.M., D.W. Jensen, G.R. Pess, and E. Ashley Steel. 2005. Effects of environmental conditions during stream, estuary, and ocean residency on chinook salmon return rates in the Skagit River, Washington. Trans. Am. Fish. Soc. 134:1562-1581.

Semmens (2007)[4] experimentally showed that chinook salmon smolts in a nearshore estuary enclosure exhibited a strong preference for native eelgrass (*Zostera marina*), but showed no such preference for other structured habitats such as oyster beds, non-native eelgrass (*Z. japonica*), or cordgrass. During the 10-day observation period *all* of the chinook smolts were predated by herons and kingfishers, but *none* were taken from the *Z. marina* habitats. Semmens (2007) concludes that not only is eelgrass a preferred habitat for chinook smolts, but it serves an important cover function that is not provided by oyster beds. Although enclosure studies are not as conclusive as studies of wild fish, and Semmens (2007) is only one such study examining the cover aspects of eelgrass, we are not aware of more conclusive studies that significantly modify these findings.

Tallis et al (2009)[5] examined the impacts of shellfish aquaculture and how those impacts depend in large part on the intensity of the aquaculture development and on the location, productivity, and initial state of the nearshore environment. Converting mudflats (particularly those with burrowing shrimp) to oyster culture has a different effect than converting eelgrass beds. In a comparison of different oyster culture methods, all oyster cultivation areas had lower densities of eelgrass than uncultivated areas (Tallis et al 2009). Uncultivated areas often had three times more eelgrass than nearby dredged areas. All aquaculture areas had smaller plants (above-ground biomass) and lower production than uncultivated areas. Dredged areas had much lower eelgrass density and productivity than long-line or hand harvested areas, but on average, for all aquaculture plots, plant size was 32% lower and production was 70% lower. Due to space conflicts and direct disturbance, all oyster aquaculture methods had negative impacts on eelgrass beds. Although some eelgrass demonstrated enhanced growth rates, this was more likely due to decreased density and competition among plants, rather than the oysters themselves. Compared with uncultivated beds, Tallis et al (2009) found 70% fewer eelgrass plants in dredged beds, and 30% fewer in hand-picked beds. Over all, aquaculture areas were 70% less productive for eelgrass than uncultivated areas.

Hosack et al (2006)[6] compared three different habitats—oyster beds, eelgrass, and mudflats—and found lower epibenthos levels in mudflats, with eelgrass and oyster beds at about the same levels. Harpacticoid copepods were significantly higher in structured habitats (oyster beds and eelgrass), especially the species known to be prey for fish. Benthic invertebrates were significantly higher in eelgrass, lower in mudflats, and intermediate in oyster beds. Densities of benthic macrofauna (crabs and shrimps) showed a nearly three-fold increase in eelgrass vs. oyster beds, and a four-fold increase over mudflats. The authors noted that structured habitats (such as eelgrass and oyster beds)

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[4] Semmens, B.X. 2008. Acoustically derived fine-scale behaviors of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) associated with intertidal benthic habitats in an estuary. Can. J. Fish. Aquat. Sci. 65: 2053-2062.

[5] Tallis, H.M., J.L. Ruesink, B. Dumbauld, S. Hacker, and L.M. Wisehart. 2009. Oysters and aquaculture practices affect eelgrass density and productivity in a Pacific Northwest estuary. Journal of Shellfish Research 28(2): 251.261

[6] Hosack, G.R., B.R. Dumbauld, J.L. Ruesink, and D.A. Armstrong. 2006. Habitat associations of estuarine species: comparisons of intertidal mudflat, seagrass (*Zostera marina*), and oyster (*Crassostrea gigas*) habitats. Estuaries and Coasts 29: 1150-1160.

support higher densities of invertebrates over relatively unstructured mudflats. They speculated that nutrients produced via feces and pseudofeces from actively feeding oysters may yield higher densities of epibenthic invertebrates by enhancing detritus-based food chains.

Dumbauld et al (2011)[7] examined the history of oyster culture in Willapa Bay, and noted that *Z. marina* provided valuable habitat for many invertebrates and fish in estuaries throughout the world. Drawing from other studies they emphasized that structured habitats such as oyster beds and eelgrass support more diverse and abundant communities of benthic infauna than unstructured mudflats. They extended this observation to many other species, such as gunnels, tubesnouts, perch, juvenile rockfish, herring, and shorebirds. Dumbauld et al (2011) went on to discuss the displacement of eelgrass by oyster aquaculture. They noted four mechanisms of disturbance: 1) competition between oysters and plants for space, 2) nutrient supplementation to eelgrass from oyster biodeposits, 3) increased light to eelgrass from increased filter feeding by oysters, and 4) complete or partial removal of plants by oyster harvesting. Of these mechanisms competition for space and direct removal appeared to be the most significant.

Wisehart et al (2007)[8] experimented with laboratory grown eelgrass seeds to determine resilience of different oyster treatments. Comparing the seedling success in long-line and dredged oyster beds to undisturbed eelgrass showed that seedlings were initially most successful in dredged areas, but that a year later the density of adult plants in undisturbed beds was more than double that of either the dredged or the longline beds. The higher the density of oysters in aquaculture beds, the lower the density of eelgrass. Although Wisehart et al (2007) found that dredge harvesting may facilitate seed germination and growth, they noted that adult densities may be more important, and that natural seedling densities were unrelated to subsequent adult shoot densities.

The discussion above references but a few of the many scientific papers on the impacts of shellfish aquaculture on eelgrass, and on the food sources at the base of the food chain. A full discussion of the research would take more time, and more space, than allowable here. What is surprising about the NMFS statements on the likely effects determination is the lack of synthesis before arriving at a decision. NMFS has reviewed several of the same papers mentioned above, but has apparently done little numeric analysis, comparisons, or modeling. NMFS has come to a conclusion of minimal effect that ignores many of the impacts that are identified in the literature, and indeed in the BiOp itself. It's as if after examining all the relevant effects, NMFS reaches the opposite conclusion that would be supported by the data, and does so without much analysis.

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[7] Dumbauld, B.R., B.E. Kauffman, A.C. Trimble, and J.L. Ruesink. 2011. The Willapa Bay oyster reserves in Washington State: fishery collapse, creating a sustainable replacement, and the potential for habitat conservation and restoration. Journal of Shellfish Research 30(1): 71-83.

[8] Wisehart, L.M., B.R. Dumbauld, J.L. Ruesink, and S.D. Hacker. 2007. Importance of eelgrass early life history stages in response to oyster aquaculture disturbance. Mar. Ecol. Prog. Ser. 344: 71-80.

One likely explanation for the dissonance in effects conclusions might be the conflation of existing and fallow aquaculture in the BiOp. The BiOp seems to lump existing and fallow areas into "existing" operations, without actively considering that the current habitat in many of the fallow areas is actually undisturbed native eelgrass. By contrast, the PBA is explicit on this point, explaining that

> "...many of the fallow lands exist currently in an unmodified or 'recovered' state. A resumption of shellfish activity in these areas may result in an impact to the aquatic ecosystem. This is most relevant to fallow lands that contain eelgrass (i.e. *Zostera marina*), a high habitat value species...."

In the effects analysis NMFS correctly explains that "shellfish aquaculture probably limits the formation of persistent eelgrass beds" and that "the existence of managed shellfish plots impairs the natural development of beds of eelgrass that provide habitat function for juvenile salmonids." And then "[T]he proposed action is likely to maintain conditions limiting distribution and density of eelgrass beds within the footprint" of managed sites, and that "recovery of eelgrass in managed sites is unlikely." These BiOp statements agree largely with the scientific papers mentioned above, which conclude that shellfish aquaculture diminishes eelgrass by about 70 percent.

However, the BiOp conclusion that "the extent to which the proposed action affects eelgrass function is low intensity and of little effect to fish because the effects are localized in places where aquaculture activities are already ongoing, and have been for many years." implies that NMFS is only examining impacts in active cultivation sites, or, more likely, has erroneously conflated the active cultivation and the fallow sites, many of which are, as the Corps explains, currently in an unmodified or recovered state. Regardless of the reasons, the NMFS BiOp, when compounded with the inaccurate acreages provided in the PBA, underestimates the proportional effects of resuming aquaculture activities into both new and fallow areas. NMFS has interpreted the proposed action to include 38,000 acres of current aquaculture in western Washington. When combined with an estimated 825 acres of combined new aquaculture, the addition only amounts to a three percent increase. This vastly under-estimates the effect of converting from fallow to active shellfish aquaculture.

One reason we mention this is because it would set a double standard for eelgrass impacts. The recent habitat conservation plan for the Washington DNR aquatic lands goes to great lengths to protect eelgrass from encroachment, by aquaculture or any other use. Likewise ACOE permits for docks or dredging require a careful mapping of eelgrass beds, avoidance, and full mitigation of impacts. Even in the NMFS BiOp, the conservation measures will require *new or expanded* aquaculture operations to provide a buffer around existing eelgrass, but yet there appears to be little if any consideration of the eelgrass in the continuing fallow aquaculture areas, which amount to thousands of acres, much of it in the North Sound. We fail to see how this can result in a "not likely to adversely affect" determination regarding ESA listed salmonids, at least not for Skagit populations.

In summary, this letter has sought to identify basic flaws in the PBA and the BiOp, which should be reconsidered. Specifically:

- The PBA areas of existing aquaculture operations are inaccurate, leading to errors in the likely effects of future aquaculture under NWP 48

- The NMFS examination of aquaculture impacts dismisses some effects on eelgrass, and the importance of eelgrass for salmon and other aquatic species

- The NMFS conclusion is not based on any clear analysis of the impacts, but identifies many of the impacts and then draws a conclusion not fully supported by the best research.

- The draft BiOp appears to confuse or conflate cultivated and fallow aquaculture acres, which leads to an under-estimation of the effects of future conversions.

We therefore recommend that the PBA be re-issued with new data showing accurate acreages of existing and fallow aquaculture, based on an independently-verified accounting of the acreage instead of self-reported acreages from the growers. We also recommend that NMFS re-analyze the impacts of aquaculture, specifically on eelgrass and specifically looking at the North Sound, where eelgrass is both prevalent and coincident with shellfish operations. That analysis should specifically examine the effects of converting from fallow to active aquaculture operations.

We at SRSC and the tribes we represent are keenly interested in protecting habitat in the Skagit basin and beyond, and would like to be involved in the discussion over a revised PBA and effects determination. Please keep us apprised of any progress or decisions on this programmatic consultation. If you have any questions about our comments, or if there is anything that we can provide, please don't hesitate to call me at (360) 466-7308 or email at thyatt@skagitcoop.org

Sincerely,

Tim Hyatt
Skagit River System Cooperative

cc:
Pam Sanguinetti, ACOE
Lorraine Loomis, Swinomish
Larry Wasserman, Swinomish
Jason Joseph, Sauk-Suiattle